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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/534,843	05/13/2005	Takeshi Fujimatsu	MAT-8685US	8949
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/534,843

Applicant(s)

FUJIMATSU ET AL.

Examiner

Thomas M. Redding

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 May 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date See Continuation Sheet.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :5/13/2005, 8/15/2005, 7/16/2007.

DETAILED ACTION

Specification

The disclosure is objected to because of the following informalities: The specification makes reference to claim 1 on page 4. It is the claims that are to be supported by the specification, rather than the specification by the claims.

The claim or claims must conform to the invention as set forth in the remainder of the specification and the terms and phrases used in the claims must find clear support or antecedent basis in the description so that the meaning of the terms in the claims may be ascertainable by reference to the description (MPEP 37 CFR 1.75(d)(1)).

Appropriate correction is required.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The USPTO "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" (Official Gazette notice of 22 November 2005), Annex IV, reads as follows:

Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." In this context, "functional descriptive material" consists of data structures and computer programs which impart functionality when employed as a computer component. (The definition of "data structure" is "a physical or logical relationship among data elements, designed to support specific data manipulation functions." The New IEEE Standard Dictionary of Electrical and Electronics Terms 308 (5th ed. 1993).) "Nonfunctional descriptive material" includes but is not limited to music, literary works and a compilation or mere arrangement of data.

When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Compare *In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994) (claim to data structure stored on a computer readable medium that increases computer efficiency held statutory) and *Warmerdam*, 33 F.3d at 1360-61, 31 USPQ2d at 1759 (claim to computer having a specific data structure stored in memory held statutory product-by-process claim) with *Warmerdam*, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory).

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In contrast, a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. See Lowry, 32 F.3d at 1583-84, 32 USPQ2d at 1035.

Claim 21 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter as follows. Claim 1 defines a computer program embodying functional descriptive material. However, the claim does not define a computer-readable medium or computer-readable memory and is thus non-statutory for that reason (i.e., "When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized" – Guidelines Annex IV). The scope of the presently claimed invention encompasses products that are not necessarily computer readable, and thus NOT able to impart any functionality of the recited program. The examiner suggests amending the claim(s) to embody the program on "computer-readable medium" or equivalent; assuming the specification does NOT define the computer readable medium as a "signal", "carrier wave", or "transmission medium" which are deemed non-statutory (refer to "note" below). Any amendment to the claim should be commensurate with its corresponding disclosure.

Note:

A "signal" (or equivalent) embodying functional descriptive material is neither a process nor a product (i.e., a tangible "thing") and therefore does not fall within one of the four statutory

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classes of § 101. Rather, “signal” is a form of energy, in the absence of any physical structure or tangible material.

Should the full scope of the claim as properly read in light of the disclosure encompass non-statutory subject matter such as a “signal”, the claim as a whole would be non-statutory. In the case where the specification defines the computer readable medium or memory as statutory tangible products such as a hard drive, ROM, RAM, etc, as well as a non-statutory entity such as a “signal”, “carrier wave”, or “transmission medium”, the examiner suggests amending the claim to include the disclosed tangible computer readable media, while at the same time excluding the intangible media such as signals, carrier waves, etc.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-6, 17-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Oda et al. (US 6,850,631 B1).

Regarding claim 1, Oda discloses [a]n eye image pickup device comprising: an eye image pickup unit for capturing an eye image ("A photographing device 3 for photographing an iris 7", Oda, column 2, line 59 and figure 1); a display image formation unit for forming a display image from the eye image by degrading an at least iris-containing area in the eye image ("the iris image is converted into a geometrical pattern", Oda, column 8, line 65); and a display unit for displaying the display image formed by the display image formation unit ("The geometrical pattern is colored and displayed on the monitor", Oda, column 8, line 66, and figure 1).

Regarding claim 2, Oda discloses [a]n authentication device comprising:
the eye image pickup device according to claim 1;
an authentication information formation unit for forming authentication information from the eye image of a user to be authenticated entered from the eye image pickup unit ("The CPU 35 then converts the image signal for the iris image inputted to the image input unit 39 to code that can recognize an individual using an iris pattern processing program pre-stored in the memory 36", Oda, column 6, line 25); and an authentication unit for authenticating the user by comparing and collating the authentication information with registered authentication information which has been registered

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previously ("a recognition unit for registering or collating information relating to an iris based on the iris image acquired by the photographing device", Oda, column 8, line 41).

Regarding claim 3, Oda discloses [t]he authentication device according to claim 2, wherein the display image formation unit forms a display image used for guiding the user about an eye position ("FIG. 5 is a view showing how images of an eye and geometrical patterns correspond", Oda, column 9, line 3 and figure 5); and the authentication information formation unit forms the authentication information from the eye image of the user ("The CPU 35 then converts the image signal for the iris image inputted to the image input unit 39 to code that can recognize an individual using an iris pattern processing program pre-stored in the memory 36", Oda, column 6, line 25), the eye image being guided to one of a specified position and a specified region by the display image on the display unit ("The person to be identified 8 then moves the photographing device 3 backwards and forwards while looking at the iris image of the right eye outputted at the monitor 2", Oda, column 7, line 9).

Regarding claim 4, Oda discloses [t]he authentication device according to claim 2 further comprising:
an authentication information registration unit for registering, as registered authentication information, the authentication information formed from the eye image of the user, wherein

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the display image formation unit forms a display image for determining whether the eye image of the user should be registered or not ("the iris image input device of the present invention can show portions represented as a geometrical pattern in, for example, green or blue when the focal point of the iris image is in focus or in red when the focal point of the iris image is not in focus", Oda, column 9, line 35); and

the authentication information registration unit registers the authentication information as the registered authentication information after the display image formed by the display image formation unit is displayed on the display unit ("determines whether the process is a "register iris" process", Oda, column 7, line 58).

Regarding claim 5, Oda discloses [t]he authentication device according to claim 2, wherein the display image formation unit forms the display image by selectively applying an image process to the at least iris-containing area in the eye image ("the iris image is converted into a geometrical pattern", Oda, column 8, line 65)

Regarding claim 6, Oda discloses [t]he authentication device according to claim 5, wherein the authentication information formation unit comprises: an eye position detection unit for detecting an eye position from the eye image ("First, the CPU 35 specifies the position of a dark portion 51 (a portion including the iris 7 and a pupil 52) from the left image (photographed image of an eye)", Oda, column 9, line 12); and an eyelid position detection unit for detecting an eyelid position from the eye image ("Of the images for eyes shown on the left side of FIG. 5, image (A) shows an ideal situation where an eye is wide open, image (B) shows a situation where an eye is narrowed or is

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an eye of a person with narrow eyes, where the iris 7 is slightly concealed by upper and lower eyelids when compared with (A), and image (C) shows the situation when looking upwards, with the iris substantially covered by an upper eyelid", Oda, column 9, line 4. Oda provides feedback related to eyelid position); and the display image formation unit determines the at least iris-containing area in the eye image from the eye position and the eyelid position, and selectively performs the image process ("the iris image is converted into a geometrical pattern", Oda, column 8, line 65).

Regarding claim 17, Oda discloses [t]he authentication device according to claim 5, wherein the display image formation unit forms a display image by replacing the at least iris-containing area in the eye image with a specified image ("the iris image is converted into a geometrical pattern", Oda, column 8, line 65).

Regarding claim 18, Oda discloses [t]he authentication device according to claim 2 further comprising: an image quality determination unit for determining whether an eye image captured by the eye image pickup unit is adequate in quality or not ("the iris image input device of the present invention can show portions represented as a geometrical pattern in, for example, green or blue when the focal point of the iris image is in focus or in red when the focal point of the iris image is not in focus", Oda, column 9, line 35), wherein the authentication information formation unit forms the authentication information of an eye image which has been determined to be adequate in quality by the image quality determination unit ("In step S5, after detecting pressing and releasing

of the switch 5, the CPU 35 has the memory 36 continue to store iris images to for a prescribed number of images, extracts an iris image that satisfies the conditions for use in registration or collation from the iris images for the prescribed number of frames stored in the memory 36, converts the extracted iris image into signal data for recognizing an individual and stores the iris image and signal data in the memory 36", Oda, column 7, line 27, Oda's conditions discard images that are not of sufficient quality).

Regarding claim 19, Oda discloses [a]n authentication device comprising:
an eye image pickup unit for capturing an eye image of a user to be authenticated (Oda figure 1);
an authentication information formation unit for forming authentication information of the eye image of the user ("The CPU 35 then converts the image signal for the iris image inputted to the image input unit 39 to code that can recognize an individual using an iris pattern processing program pre-stored in the memory 36", Oda, column 6, line 25);
an authentication information registration unit for registering the authentication information as registered authentication information ("a recognition unit for registering or collating information relating to an iris based on the iris image acquired by the photographing device", Oda, column 8, line 41);
authentication unit for authenticating the user by comparing and collating the authentication information with registered authentication information which has been registered previously ("a recognition unit for registering or collating information relating

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to an iris based on the iris image acquired by the photographing device", Oda, column 8, line 41);

display image formation unit for forming a display image by degrading an at least iris-containing area in the eye image ("the iris image is converted into a geometrical pattern", Oda, column 8, line 65).; and

a display unit for displaying the display image, wherein the display image formation unit forms the display image and makes the display unit display the display image at least one of when the user is guided (Oda, figure 6, geometric pattern displayed indicates the state of the eye) and when the authentication information registration unit registers the authentication information as the registered authentication information (Oda, figure 9, s11, display collation results on monitor)

Regarding claim 20, Oda discloses [a]n image processing method comprising: a first step of cutting out an at least iris-containing area from an eye image ("converts the extracted iris image into signal data for recognizing an individual", Oda, column 7, line 29); and a second step of selectively degrading an image of the iris-containing area cut out in the first step ("the iris image is converted into a geometrical pattern", Oda, column 8, line 65).

Regarding claim 21, Oda discloses [a] program for making a computer execute: a first step of cutting out an at least iris-containing area from an eye image; and a second step of selectively degrading an image of the iris-containing area cut out in the first step

(Oda discloses steps 1 and 2 as discussed in the rejection of claim 1 above. Oda's system is controlled by a CPU which is in turn controlled via software, figure 3 CPU and "executed by the CPU 35 based on a control program stored in the memory 36", Oda, column 10, line 63).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oda et al. (US 6,850,631 B1) and Official Notice.

Regarding claims 11 and 12, Oda teaches all the elements of claims 2 and 5 as given above. Oda does not explicitly teach wherein the display image formation unit forms a display image by reducing the number of pixels composing the eye image.

It is well known in the art of programming, to allow resizing of image windows and their contents. Reducing an image in size requires reducing the number of pixels displayed (Official Notice).

It would have been obvious at the time the invention was made to provide image resizing capabilities to the iris recognition system of Oda for the user's convenience and to provide normal windowing functionality.

5. Claims 7-10, 13 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oda et al. (US 6,850,631 B1) in combination with Bonneau, Jr. (US 5,581,620).

Regarding claims 7-10, Oda teaches all the elements of claims 2 and 5 as disclosed above. Oda does not teach wherein the display image formation unit forms a display image by subjecting the eye image to compression, wherein the compression is JPEG compression.

Bonneau, Jr., working in the same field of endeavor of personal identification does teach a display image formation unit forms a display image by subjecting the eye image to compression, wherein the compression is JPEG compression ("In accordance with this embodiment, optical card media 13 stores the customer's eye retina pattern data or finger print data in a compressed image format, such as the JPEG format or similar image compression format", Bonneau, column 6, line 8).

It would have been obvious at the time the invention was made to use JPEG compression as taught by Bonneau. in combination with the iris recognition system of Oda in order to solve an image storage problem identified by Oda ("If the memory 36 becomes full, old iris images are deleted and new iris images are stored", Oda, column 11, line 57). JPEG compression would permit Oda to store more images.

Regarding claims 13 and 14, the combination of Oda and Bonneau teaches wherein the display image formation unit forms a display image by adding specified noise to the eye image (Bonneau teaches JPEG compression as discussed above. JPEG introduces noise, particularly at higher compression. "In DCT-based video/image compression, such as MPEG or JPEG, a low bit rate (high compression) for efficient transmission or storage is known to cause annoying artifacts, such as mosquito-noise, block noise, etc", Oizumi et al, paragraph 4. The nature of JPEG will introduce some noise if the compression is high enough).

Regarding claims 15 and 16, the combination of Oda and Bonneau as disclosed above in the discussion of claims 13 and 14 does teach wherein the display image formation unit forms a display image by subjecting the eye image to at least two image processes out of reducing the number of pixels composing the eye image, compressing the eye image, and adding specified noise to the eye image (as discussed previously, the use of JPEG already adds noise to the image " In DCT-based video/image compression, such as MPEG or JPEG, a low bit rate (high compression) for efficient

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transmission or storage is known to cause annoying artifacts, such as mosquito-noise, block noise, etc", Oizumi et al, paragraph 4).

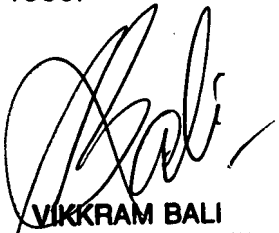
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas M. Redding whose telephone number is (571) 270-1579. The examiner can normally be reached on Mon - Fri 7:30 am - 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vikkram Bali can be reached on (571) 272-7415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/TMR/



VIKKRAM BALI
PRIMARY EXAMINER